



# Achieving, Demonstrating, and Documenting Meaningful Use with The Diver Solution for Healthcare™

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### EXECUTIVE SUMMARY

The Health Information Technology for Economic and Clinical Health (HITECH) Act financially incentivizes healthcare providers to improve the quality of patient care and reduce costs by deploying Health Information Technology (HIT) throughout their organizations. In order for healthcare providers to receive federal stimulus dollars they must demonstrate “meaningful use” of HIT by achieving compliance with criteria published by the Centers for Medicare & Medicaid Services (CMS).

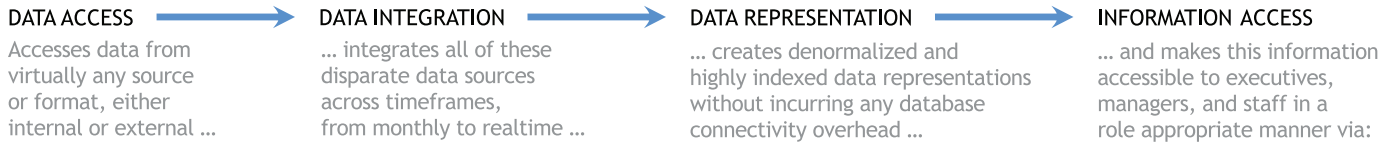
Although Meaningful Use discussions and publications have thus far focused primarily on the adoption and implementation of Electronic Medical Records (EMRs), HIT investments in interoperability, business intelligence, and information delivery are also required to attain compliance with Meaningful Use criteria.

This paper discusses the pivotal role that Dimensional Insight’s The Diver Solution™ plays in helping healthcare providers drive compliance toward the published criteria currently defining Meaningful Use. An integrated, end-to-end platform, The Diver Solution features an integrated suite of reporting, analytics, and data visualization functionality used by hospitals, physicians, nurses, analysts, and benefits managers to improve the quality of patient care, reduce costs, and drive efficiencies within their organizations through better insight into their data.

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# Dimensional Insight HIDS™ (Healthcare Information Delivery System)



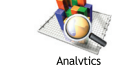
## Source Systems



## Dimensional Insight HIDS™



## Capabilities



**DRIVING MEANINGFUL USE COMPLIANCE WITH A REPORTING AND ANALYTICS PLATFORM** Both the cultural and technological obstacles outlined above can be overcome with the proper combination of software and human data domain expertise. The diagram below provides an overview of Dimensional Insight's reporting and analytics platform and the four functional areas comprising the platform:

**DATA ACCESS** Identifying and validating the data sources required to generate the Meaningful Use metrics defined by CMS can present significant challenges. Decentralized data repositories such as spreadsheets often contain critical information beyond the jurisdiction of IT. Transactional systems typically retain limited historical data, requiring an archival process to be instituted before analysis such as time trending can be performed. Operational systems with limited or no interoperability can hinder efforts to extract data efficiently. Resource constraints on heavily utilized

systems can significantly narrow the time window available for extracting source data. This in turn can limit the frequency with which data is refreshed in the reporting and analytics platform and may limit its utility for healthcare providers.

The Diver Solution can access virtually any source system and file format employed within a healthcare organization. Whether data is stored in transactional-based operational systems, purchased from external sources such as benchmarking services, or located within flat files, spreadsheets, or relational databases, The Diver Solution provides the necessary Extract, Transform, and Load (ETL) functionality required to access data regardless of source or format.

**DATA INTEGRATION** Once the disparate data sources have been extracted, data must be validated, aggregated, enhanced, and synchronized across time frames.

- Data validation - existing data values must either be verified against lookup tables or mapped to new values based on predefined business rules. Missing values must be flagged and handled appropriately, and statistical outliers must also be transformed or eliminated.
- Aggregation - transactional records must be aggregated into appropriate time frames and entities such as patient, department, or insurer. DRG groupers are used to aggregate DRG codes for reimbursement.
- Data enhancement - third party data sources such as demographic or benchmarking data are added to source data in order to provide analytical insight for end users.
- Merging and synchronizing data - transactional systems collect data across disparate time frames. These timeframes must be reconciled between the various source systems and synchronized in order to create an accurate historic representation of events.

Examining some of the 2011 Meaningful Use measures illustrates the critical role that robust data integration plays in attaining compliance with these measures. The following measures require the integration of multiple internal and external systems, synchronization of disparate data formats into a usable common data view, and the reconciliation of different underlying business rules:

- Percent of claims submitted electronically to all payers
- Percent of orders (for medications, lab tests, procedures, radiology, and referrals) entered directly by physicians through CPOE

**DATA REPRESENTATION** By transforming data into a de-normalized, highly indexed data structure known as a Model, raw data is converted into usable information. Unlike conventional reporting and analytics platforms, DI's patented implementation does not require a database to house its Models. This eliminates the database licensing costs as well as the associated database connectivity overhead and ongoing maintenance costs, resulting in faster response times for end users. The Model is key to efficient reporting and data mining. In addition to Models, Dimensional Insight's technology also provides for real time data access directly from source systems when required by an application.

**INFORMATION ACCESS** The Diver Solution provides users with secure, auditable, role-appropriate information access via a number of flexible delivery options. Physician scorecards, operational dashboards, real time email alerts, mobile device support, advanced data visualization and ad-hoc analytical tools are standard functionality. Information can also be exported to a number of popular formats such as Adobe PDF documents, MS Excel spreadsheets, PowerPoint and Word files, and HTML pages. Diver Solution dashboards serve as a convenient medium for displaying the Meaningful Use metrics and key performance indicators defined by CMS. Information displayed on these dashboards is also directional and actionable. Users understand immediately what action to take when indicators are out of compliance and where to find resources to support those actions. Trending data and control charts provide users with an early warning system for anticipating potential problems, such as a spike in Hospital-Acquired Conditions (HACs) or staffing bottlenecks around holidays.



Turning again to the published Meaningful Use measures illustrates the need for flexible reporting and information delivery options, not only internal to the organization, but to external government agencies as well:

- Specialists report to relevant external disease (e.g. - cardiology, thoracic surgery, cancer) or device registries, approved by CMS, electronically where possible, and accepted by registry
- Implemented ability to exchange health information with external clinical entity (specifically labs, care summary and medication lists)

**ANALYTICS** With the powerful ad-hoc analytical capabilities found within The Diver Solution, healthcare practitioners can “move beyond the report” to conduct root cause analysis of the factors that drive deviations from the Meaningful Use metrics. While many BI platforms help users identify problems, The Diver Solution differentiates itself by providing the advanced analytical functionality required to isolate and understand the myriad issues that underpin those problems.

The analytical capabilities accessible through Diver Solution dashboards and client applications allow users to drill down or “dive” into the data comprising an indicator, report, or chart. This helps users isolate the issue and understand the drivers

behind a non-compliant clinical metric or an over-budget financial value, for example. A healthcare provider might find that they are performing below the national average in complying with the 2011 Meaningful Use metric that details the percent of orders for high-cost imaging services with specific structured indications recorded. Advanced analytics provides immediate insight into the drivers by identifying particular nursing shifts, days of the week, or attending physicians that are responsible for below average values. Once these drivers have been identified and substantiated with evidence collected by The Diver Solution, managers can take appropriate remedial action.

**LOWERING TOTAL COST OF OWNERSHIP AND MAXIMIZING EASE OF USE** Dimensional Insight designed The Diver Solution Healthcare Information Delivery System with the twin goals of low Total Cost of Ownership (TCO) and maximal ease of use in mind. The Diver Solution employs best-in-class security and encryption mechanisms. A central point of administration minimizes IT resources. A highly customizable reporting engine delivers Meaningful Use data in CMS-specified formats. Easily understood and visually impactful dashboards and reports help overcome many of the cultural obstacles discussed previously and result in lower training costs. When users realize that the technology is not complex or intimidating, adoption rates and employee productivity both rise.

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